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EXAMINER	
ROMAN, LUIS ENRIQUE	
ART UNIT	**PAPER NUMBER**
2836	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)
	10/690,366	BLUMENAUER ET AL.
	Examiner	**Art Unit**
	Luis Roman	2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Ojections

Claim 41 recite the limitation ***"...said at least one first electrical circuit..."***. There is insufficient antecedent basis for this limitation in the claim.
For the purpose of further examination it would be understood as ***"...said at least one electrical circuit..."***.
Proper correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bolda et al. (US 6204751).

Regarding claim 1 Bolda et al. discloses a fault interrupter module comprising: an adapter module (Fig. 2 elements 56 & 58), which includes electrical ground and line fault interrupter circuitry (Fig. 2 elements 64, 62a, 62b, 62c, 72) wherein said electrical ground and line fault interrupter circuitry includes: at least one magnetic device (Fig. 2 elements 62a, 62b) capable of detecting a magnetic field from at least one fault current; multiple conductive windings (Fig. 2 elements 64, 62c) with a first (Fig. 2 output of element 70) and second (Fig. 2 output of element 68) outputs, said multiple conductive windings being magnetically coupled to said at least one magnetic device (Fig. 2 elements 62a, 62b), and a current interrupter circuit electrically connected to said multiple conductive windings, said current interrupter circuit being capable of detecting a ground fault signal from the first output (Fig. 2 output of element 70) of said multiple conductive windings and a line fault signal from the second output (Fig. 2 output of element 68) of said multiple conductive windings, said current interrupter circuit outputting an electronic fault signal (Fig. 2 signal thru connection between elements 72 & 76) when at least one of the ground and the line fault signals are detected (Fig. 2 detection and calculation made by element 72).

Claims 15, 19, 21 & 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Sexton (US 5807141).

Regarding claim 15 Sexton discloses a fault interrupter module (Fig 8B element 65) comprising: a socket (Fig 8B elements 72, 73, 83) in electrical communication with external electronic circuitry; an adapter module (Fig 8B elements 74, 83, 84) which includes electrical fault indicator circuitry (col. 12 lines 3-5) and a fault interruption circuit module (col. 9 lines 39-41 & Fig. 8B element 77) capable of being plugged into said socket through said adapter module (Fig. 8A element 82, Fig 8B element 83), wherein said adapter module includes at least one magnetic device (Fig. 18 windings connected to GFI DETECTION CIRCUIT) capable of detecting an electrical fault in said at least one fault interruption circuit module.

Regarding claim 19 Sexton discloses the module of claim 15.
Sexton further discloses wherein said fault interruption circuit module is plugged into said socket through said adaptor module by a plurality of conductive pins (Fig. 8B element 83), which slidingly engage said socket (Fig. 8A element 82).

Regarding claim 21 Sexton discloses the module of claim 15.
Sexton further discloses wherein a switching device is in electrical communication with said at least one magnetic device (Fig 18 elements RELAY & windings to the right).

Regarding claim 22 Sexton discloses the module of claim 21.
Sexton further discloses wherein said switching device opens at least one electrical connection through said fault interruption circuit module when said electrical fault is detected by said at least one magnetic device (Fig 18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 3, 4, 5, 6, 7, 8, 9 10, 11, 12, 13, 14, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 & 42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751).

Bolda et al. discloses a fault interrupter module comprising: an adapter module (Fig. 2 elements 56 & 58), which includes electrical ground (Fig. 2 element 64) and line fault (Fig. 2 elements 62a, 62b, 62c) interrupter circuitry wherein said electrical ground and line fault interrupter circuitry includes: at least one magnetic device (Fig. 2 elements 62a, 62b, 62c, 64) capable of detecting a magnetic field from at least one fault current; multiple conductive windings (Fig. 2 elements 64, 62a, 62b, 62c) with a first (Fig. 2 output of element 70) and second (Fig. 2 output of element 68) outputs, said multiple conductive windings being magnetically coupled to said at least one magnetic device (Fig. 2 elements 62a, 62b, 62c, 64), and a current interrupter circuit electrically connected (Fig. 2 elements 72, 76, 78) to said multiple conductive windings, said current interrupter circuit being capable of detecting a ground fault signal from the first output (Fig. 2 output of element 70) of said multiple conductive windings and a line fault signal from the second output (Fig. 2 output of element 68) of said multiple conductive windings, said current interrupter circuit outputting an electronic fault signal (Fig. 2 signal thru connection between elements 72 & 76) when at least one of the ground and the line fault signals are detected (Fig. 2 detection and calculation made by element 72). Bolda et al. does not disclose the specific configuration of sensors nor the processing and actions to take according to the input to process the signals from the sensor with a microprocessor which give more flexibility and a plurality of functions than can be adjusted by changing software. This microprocessor will be taken into consideration in claims 2 through 8.

Regarding claim 2 Bolda et al. discloses the module of claim 1.
Bolda et al. further discloses including at least one first electrical circuit module (Fig. 2 element 58) electromagnetically coupled with said electrical ground (Fig. 2 input of element 70, the conditioning circuitry may be a passive filter, an amplifier with gain unity or just a conductive connection) and line fault (Fig. 2 element 68, the conditioning circuitry may be a passive filter, an amplifier with gain unity or just a conductive connection) interrupter circuitry.

Regarding claim 3 Bolda et al. discloses the module of claim 2.
Bolda et al. further discloses wherein said at least one first electrical circuit module (Fig. 2 element 58) includes at least one of a magnetically sensitive switch, a relay switch (Fig. 2 element 78), a reed switch, and a circuit breaker.

Regarding claim 4 Bolda et al. discloses the module of claim 2.
Bolda et al. further discloses wherein said at least one first electrical circuit module (Fig. 2 element 58) is in electrical communication with at least one second electrical circuit module (Fig. 2 element 58, since the element 72 is a microprocessor which can perform

more than one task) through at least one electrical interconnect (Fig. 2 lines 66a, 66b, 66c) extending through said adapter module.

Regarding claim 5 Bolda et al. discloses the module of claim 2. Bolda et al. further discloses including at least one second electrical circuit module (Fig. 2 element 58, since the element 72 is a microprocessor which can perform more than one task), said at least one second electrical circuit module being in electrical communication with said at least one first electrical circuit module (Fig. 2 element 58) and external electronic circuitry.

Regarding claim 6 Bolda et al. discloses the module of claim 5. Bolda et al. further discloses wherein said at least one second electrical circuit module includes a relay socket (Fig. 2 elements 80a, 80b).

Regarding claim 7 Bolda et al. discloses the module of claim 2. Bolda et al. further discloses wherein said at least one first electrical circuit module (Fig. 2 element 58) includes at least one conductive interconnect which extends through said at least one magnetic device (Fig. 2 elements 68 & 70, the conditioning circuitries may be a passive filter, an amplifier with gain unity or just a conductive connection).

Regarding claim 8 Bolda et al. discloses a fault interrupter module comprising: an adapter module (Fig. 2 elements 56 & 58), which includes electrical ground (Fig. 2 element 64) and line fault (Fig. 2 elements 62a, 62b, 62c) interrupter circuitry wherein said electrical ground and line fault interrupter circuitry includes: at least one magnetic core capable of detecting a magnetic field (Fig. 2 elements 62a, 62b, 62c, 64) from at least one fault current, multiple conductive windings with a first output (Fig. 2 output of element 70) and a second output (Fig. 2 output of element 68), said multiple conductive windings being magnetically coupled to said at least one magnetic core (Fig. 2 elements 62a, 62b, 62c, 64); a first sensing circuit (Fig. 2 element 72) with first and second inputs, the first input of said first sensing circuit being electrically connected to the first output of said multiple conductive windings (Fig. 2 connection between elements 70 & 72) and the second input of said first sensing circuit being electrically connected to the second output of said multiple conductive windings (Fig. 2 connection between elements 70 & 72), a second sensing circuit (Fig. 2 element 72) with first and second inputs, the first input of said second sensing circuit being electrically connected to the first output of said multiple conductive windings (Fig. 2 connection between elements 68 & 72) and the second input of said second sensing circuit being electrically connected to the second output of said multiple conductive windings (Fig. 2 connection between elements 68 & 72), and a current interrupter circuit (Fig. 2 elements 72, 76, 78), with an input (Fig. 2 line between elements 56 & 72) and an output (Fig. 2 line between elements 72 & 76), the input of said current interrupter circuit being electrically connected to an output of said first sensing circuit element (Fig. 2 line between elements 70 & 72) and an output of said second sensing circuit (Fig. 2 line between elements 68 & 72), the output of said current interrupter circuit outputting an electronic

fault signal (Fig. 2 line between elements 72 & 76) to a switch (Fig. 2 element 78) when an electronic fault is detected.

Regarding claim 9 Bolda et al. discloses the module of claim 8.
Bolda et al. further discloses wherein at least one of said first and second sensing circuits includes: an impedance with a first terminal and a first opposed terminal, the first terminal of said impedance being electrically connected to at least one of the first and second outputs of said multiple conductive windings, a rectifier with a second terminal and a second opposed terminal, the second terminal of said rectifier being electrically connected to the first opposed terminal of said impedance, an electronic filter with a third terminal and a third opposed terminal, the third terminal of said electronic filter being electrically connected to the second opposed terminal of said rectifier; and a comparator with a fourth terminal and a fourth opposed terminal, the fourth terminal of said comparator being electrically connected to the third opposed terminal of said electronic filter, the fourth opposed terminal of said comparator (These describe a serial circuit comprising a load, a rectifier, a filter, and a comparator. All these functions are accomplished by the microprocessor 72 of Fig. 2) being electrically connected to the input of said current interrupter circuit (Fig. 2 elements 76, 78).

Regarding claim 10 Bolda et al. discloses the module of claim 8.
Bolda et al. further discloses wherein a three phase circuit (Fig. 2 elements 66a, 66b, 66c) is electromagnetically coupled (Fig. 2 elements 64, 62a, 62b, 62c) to said electrical ground and line fault interrupter circuitry (Fig. 2 elements 56 & 58).

Regarding claim 11 Bolda et al. discloses the module of claim 10.
Bolda et al. further discloses wherein said three phase circuit (Fig. 2 elements 66a, 66b, 66c) includes at least one switch (Fig. 2 element 78) capable of receiving the electronic fault signal (col. 5 lines 50-59).

Regarding claim 12 Bolda et al. discloses the module of claim 11.
Bolda et al. further discloses wherein said three phase circuit (Fig. 2 elements 66a, 66b, 66c) is electrically connected to at least one load impedance (Fig. 2 element 60) through said at least one switch (col. 5 lines 50-59).

Regarding claim 13 Bolda et al. discloses the module of claim 12.
Bolda et al. further discloses wherein said three phase circuit (Fig. 2 elements 66a, 66b, 66c) and said at least one load impedance (Fig. 2 element 60) are electrically connected through a conductive interconnect which extends through said at least one magnetic core (Fig. 2 element 64), said conductive interconnect being electrically connected in series with said at least one switch (Fig. 2 element 78 & col. 5 lines 50-59).

Regarding claim 14 Bolda et al. discloses the module of claim 8.
Bolda et al. further discloses wherein the output of said first sensing circuit is electrically connected to a first input of an OR gate and the output of said second sensing circuit is electrically connected to a second input of said OR gate wherein an output of said OR gate (all these operations are processed by the element 72 of Fig. 2) is electrically connected to the input of said current interrupter circuit (Fig. 2 elements 76 & 78).

Regarding claim 24 Bolda et al. discloses the method (a person of the ordinary skill will understand a method that is intrinsically described by the functioning of the apparatus) of detecting an electronic fault in a circuit, the method comprising the steps of: detecting a magnetic field (Fig. 2 elements 64, 62a, 62b, 62c) from a fault current flowing through a switch in said circuit, converting said fault current into a ground fault (Fig. 2 element at the right of element 70) signal and a line fault (Fig. 2 element at the right of element 68) signal; measuring the ground fault signal by comparing the ground fault signal to a ground fault reference signal (Fig. 2 calculation & comparison made by software, element 72) , measuring the line fault signal by comparing the line fault signal to a line fault reference signal (Fig. 2 calculation & comparison made by software, element 72); opening said switch to create an open circuit (Fig. 2 element 78) when the ground fault signal is greater than or equal to the ground fault reference signal, and opening said switch to create an open circuit when the line fault signal is greater than or equal to the line fault reference signal (Fig. 2 calculation & comparison made by software, element 72).

Regarding claim 25 Bolda et al. discloses the method of claim 24.
Bolda et al. further discloses wherein said step of comparing the line fault signal (Fig. 2 at the right of element 68) to the line fault reference signal includes a step of measuring a voltage across an impedance (Fig. 2 calculation/comparison made by software, element 72).

Regarding claim 26 Bolda et al. discloses the method of claim 24.
Bolda et al. further discloses wherein said steps of comparing the ground fault signal (Fig. 2 at the right of element 70) to the ground fault reference signal include a step of measuring a voltage across an impedance (Fig. 2 calculation/comparison made by software, element 72).

Regarding claim 27 Bolda et al. discloses the method of claim 24.
Bolda et al. further discloses wherein said step of opening said switch includes a step of flowing a ground fault current greater than one Amp through said switch (Fig. 2 this value can be set by software, element 72).

Regarding claim 28 Bolda et al. discloses the method of claim 24.
Bolda et al. further discloses wherein said step of opening said switch includes a step of flowing a line fault current greater than 90 Amps through said switch (Fig. 2 this value can be set by software, element 72).

Regarding claim 29 Bolda et al. discloses the method of claim 24. Bolda et al. further discloses wherein said step of opening said switch (Fig. 2 element 78) includes a step of transmitting a fault signal (Fig .2 line from elements 72 to 76) to said switch.

Regarding claim 30 Bolda et al. discloses the method of claim 24. Bolda et al. further discloses wherein said step of detecting the magnetic field with said magnetic device (Fig. 2 element 64) includes a step of inducing a current in a magnetic core (col. 5 lines 15-20).

Regarding claim 31 Bolda et al. discloses the method of claim 24. Bolda et al. further discloses wherein said step of measuring the line (Fig. 2 element 62a, 62b, 62c) and ground (Fig. 2 element 64) fault signals includes a step of rectifying (Fig. 2 elements 68, 70 conditioning circuits) at least one of the line and ground fault signals.

Regarding claim 32 Bolda et al. discloses the method of claim 31. Bolda et al. further discloses wherein said step of measuring the line (Fig. 2 element 62a, 62b, 62c) and ground (Fig. 2 element 64) fault signals includes a step of filtering at least one of the line and ground fault signals Fig. 2 elements 68, 70 conditioning circuits).

Regarding claim 33 Bolda et al. discloses the method (a person of the ordinary skill will understand a method that is intrinsically described by the functioning of the apparatus) of detecting an electronic fault in a circuit, the method comprising the steps of: providing a three phase circuit (Fig. 2 elements 66a, 66b, 66c) electrically connected to an impedance load (Fig. 2 element 60) through at least one conductive interconnect and at least one switch (col. 5 lines 50-59 & Fig. 2 element 78); measuring a current flowing through said at least one conductive interconnect to determine a ground fault (Fig. 2 element 64) signal and a line fault (Fig. 2 elements 62a, 62b, 62c) signal, comparing the ground fault signal with a ground reference current (Fig. 2 calculation made by element 72) and comparing the line fault signal with a line current (Fig. 2 calculation made by element 72), and opening said switch (Fig. 2 element 78) to create an open circuit if the ground fault signal (Fig. 2 at the right of element 70) is greater than or equal to the ground reference (Fig. 2 calculation made by element 72) current or if the line fault signal (Fig. 2 at the right of element 68) is greater than or equal to the line current (Fig. 2 calculation made by element 72).

Regarding claim 34 Bolda et al. discloses the method of claim 33. Bolda et al. further discloses wherein said step of measuring the current flowing through said at least one conductive interconnects (Fig. 2 elements 64, 62a, 62b, 62c) includes measuring a magnetic field with multiple conductive windings.

Regarding claim 35 Bolda et al. discloses the method of claim 34.
Bolda et al. does not explicitly teach including a step of choosing the ground and line currents by choosing a number of turns in said multiple conductive windings.
It would have been obvious to one having ordinary skill in the art, from Fig. 2 elements 64, 62a, 62b, 62c (windings), that the currents induced in a winding are directly proportional to the number of turns of that winding.

Regarding claim 36 Bolda et al. discloses the method of claim 33.
Bolda et al. further discloses wherein said step of comparing the ground fault (Fig. 2 at the right of element 70) signal with the ground reference signal and the line fault (Fig. 2 at the right of element 68) signal to the line reference signal includes a step of measuring a voltage across an impedance (Fig. 2 element 60).

Regarding claim 37 Bolda et al. discloses the method of claim 33.
Bolda et al. further discloses wherein said step of opening said switch (Fig. 2 element 78) includes a step of transmitting a fault signal (Fig. 2 line between elements 72 & 76) to said switch.

Regarding claim 38 Bolda et al. discloses the method of claim 33.
Bolda et al. further discloses wherein said step of measuring the line (Fig. 2 at the right of element 68) and ground (Fig. 2 at the right of element 70) fault signals includes a step of rectifying (Fig. 2 elements 68, 70) at least one of the line and ground fault signals.

Regarding claim 39 Bolda et al. discloses the method of claim 38.
Bolda et al. further discloses wherein said step of measuring the line (Fig. 2 at the right of element 68) and ground (Fig. 2 at the right of element 70) fault signals includes a step of filtering (Fig. 2 elements 68, 70) at least one of the line and ground fault signals.

Regarding claim 40 Bolda et al. discloses the method of claim 39.
Bolda et al. does not explicitly teach wherein the step of filtering at least one of the line and ground fault signals includes a step of adjusting a frequency characteristic of an electronic filter to obtain a desired filter characteristic.
It would have been obvious to one having ordinary skill in the art, from Fig. 2 elements 68, 70 (which may be filters), adjusting a frequency characteristic of an electronic filter to obtain a desired filter characteristic.

Regarding claim 42 Bolda et al. discloses a fault means interrupter module for a interrupter module comprising: circuit with a switch (Fig. 2 element 78), said fault means for detecting a fault current in said circuit (Fig. 2 elements 64, 62a, 62b, 62c), means for converting the fault current into an electrical ground fault signal and an electrical line fault signal (Fig. 2 Elements 68, 70), means for comparing the electrical ground fault signal to a ground fault reference (Fig. 2 comparison made by element 72), means for generating a fault signal if the electrical ground fault signal is greater than or equal to the ground fault reference (Fig. 2 generation made by element 72), means for

comparing the electrical line fault signal to a line fault reference (Fig. 2 comparison made by element 72), means for generating the fault signal if the electrical line fault signal is greater than or equal to the line fault reference (Fig. 2 generation made by element 72), and means for transmitting the fault signal to said switch in said circuit (Fig. 2 line from elements 72 through 76), wherein said switch (Fig. 2 element 78) opens when the fault signal is detected

Claims 16, 17 & 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sexton (US 5807141) in view of Bax (US 6583975).

Regarding claim 16 Sexton discloses the module of claim 15.
Sexton does not disclose wherein said external electronic circuitry is in electrical communication with at least one of a fuel pump circuit, an engine circuit, and a gas pump circuit.
Bax teaches wherein said external electronic circuitry is in electrical communication with at least one of a fuel pump circuit (col. 1 lines 51-67), an engine circuit, and a gas pump circuit.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Sexton device with the Bax device features since arcing within a fuel pump can lead to a breach of the fuel vessel. In aircraft, such a breach can be catastrophic.

Regarding claim 17 Sexton discloses the module of claim 15.
Bax further teaches wherein said external electronic circuitry is positioned proximate to a flammable material (a fuel pump is flammable).

Regarding claim 18 Sexton discloses the module of claim 15.
Bax further discloses wherein said fault interruption circuit module includes at least one of an electronic relay in an airplane fuel system (col. 2 lines 30-34 & Fig. 9 element 60), a circuit breaker in an airplane fuel system, a relay in a fuel pump, and a circuit breaker in a fuel pump.

Claim 20 is rejected under 35 U.S.C. §103(a) as being anticipated by Sexton (US 5807141).

Regarding claim 20 Sexton discloses the module of claim 19.
Sexton does not explicitly teach wherein at least one conductive pin in the plurality of conductive pins extends through said at least one magnetic device.
It would have been obvious to one having ordinary skill in the art from Fig. 8B element 83 (pins) and Fig. 18 (GFI DETECTION CIRCUIT) that it is necessary an electrical, mechanical or magnetic connection between this pins and the magnetic device.

Claims 23 & 41 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bolda et al. (US 6204751) in view of Sexton (US 5807141).

Regarding claim 23 Bolda et al. discloses a fault interrupter module comprising: an adapter module including electrical ground (Fig. 2 element 64) and line fault (Fig. 2 elements 62a, 62b, 62c) interrupter circuitry wherein said ground and line fault interrupter circuitry includes: at least one magnetic core (col. 5 lines 15-20 & Fig. 2 elements 62a, 62b, 62c) capable of detecting a magnetic field from at least one fault current, multiple conductive windings (Fig. 2 elements 64, 62a, 62b, 62c) with a first (Fig. 2 at the right of element 70) output and a second (Fig. 2 at the right of element 68) output, said multiple conductive windings being magnetically coupled to said at least one magnetic core (col. 5 lines 15-20); a current interrupter circuit electrically connected to said multiple conductive windings (Fig. 2 elements 72, 76, 78), said current interrupter circuit being capable of detecting a ground fault from the first (Fig. 2 element at the right of 70) output of said multiple conductive windings and a line fault from the second (Fig. 2 element at the right of 70) output of said multiple conductive windings, said current interrupter circuit outputting an electronic fault signal (Fig. 2 line between elements 72 & 76) when at least one of the ground and the line faults are detected (Fig. 2 calculation/detection by element 72). Bolda et al. also discloses a relay, which is activated by an electronic fault signal sent by the microprocessor (Fig. 2 elements 72, 76, 78).

Bolda et al. does not disclose a fault interrupter module comprising: a relay socket module electrically connected to external electrical circuitry; an adapter module fixedly attached to said relay socket module, and a relay module electromagnetically coupled with said electrical ground and line fault circuitry, said relay module being in electrical communication with said relay socket module through conductive interconnects extending through said at least one magnetic core, said relay module including a switch electrically activated by the electronic fault signal.

Sexton teaches a fault interrupter module comprising: a relay socket module electrically connected to external electrical circuitry (Fig. 8A element 77); an adapter module fixedly attached to said relay socket module (Fig. 18), and a relay module electromagnetically coupled with said electrical ground and line fault circuitry (Fig. 18), said relay module being in electrical communication with said relay socket module through conductive interconnects extending through said at least one magnetic core (Fig. 8B element 83 (pins) and Fig. 18 (GFI DETECTION CIRCUIT) where there is an electrical, mechanical or magnetic connection between the pins and the magnetic device), said relay module including a switch (Fig. 18 element RELAY) electrically activated by the electronic fault signal.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Bolda et al. device with the Sexton device features in order to have a removable module of low cost, easy to self-replace with no complicated wirings.

Regarding claim 41 Bolda et al. discloses a method (a person of the ordinary skill will understand a method that is intrinsically described by the functioning of the apparatus) of providing electronic fault detection in a circuit, the method comprising the steps of: providing at least one electrical circuit module in electrical communication with a connection in said circuit (Fig. 2 element 58), said at least one electrical circuit module including at least one electrical interconnect (Fig. 2 elements 83a, 83b, 83c, 83d) and at least one switch (Fig. 2 element 78); removing said at least one first electrical circuit module from said connection in said circuit (Fig. 2 element 58).
Bolda et al. does not disclose a method providing an adapter module which includes electrical ground and line fault indicator circuitry, said adapter module being positioned in said connection in said circuit, positioning said at least one electrical circuit module on said adapter module, said at least one electrical interconnect extending through said electrical ground and line fault indicator circuitry to make electrical contact with said circuit, detecting a fault current flowing through said at least one electrical circuit to said circuit; transmitting a fault signal from said adapter module to said at least one switch, and opening said at least one switch when the fault signal is detected by said at least one switch.
Sexta teaches a method (a person of the ordinary skill will understand a method that is intrinsically described by the functioning of the apparatus) providing an adapter module which includes electrical ground and line fault indicator circuitry, said adapter module being positioned in said connection in said circuit, positioning said at least one electrical circuit module on said adapter module (Fig. 8B element 77) said at least one electrical interconnect extending through said electrical ground and line fault indicator (col. 12 lines 3-5) circuitry to make electrical contact with said circuit, detecting a fault current (Fig. 18 windings to the right of element RELAY) flowing through said at least one electrical circuit to said circuit; transmitting a fault signal from said adapter module to said at least one switch (Fig. 18 element RELAY), and opening said at least one switch when the fault signal is detected (Fig. 18 element GFI) by said at least one switch.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Bolda et al. device with the Sexton device features in order to have a removable module of low cost, easy to self-replace with no complicated wirings.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272 – 5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

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